
17 Cross-cultural impacts in the domestic workplace: multicultural work environment, cultural intelligence, and extra-role performance

Robert Engle and Christopher Schlaegel

INTRODUCTION

Multiculturalism in the workplace has been increasing over the years in many countries, including the United States, with the United Nations indicating there have never been more immigrants than seen today (Titzmann & Fuligni, 2015). Multiculturalism has been increasingly viewed as beneficial, and even as “essential,” by business organizations as it is seen to positively impact such things as better decision making, greater creativity, and innovation (Aghazadeh, 2004; Cox & Blake, 1991; Evans & Suklun, 2017; Fitzsimmons et al., 2017). However, despite the performance benefits of cultural diversity seen by organizations in the workplace, some challenges have been identified resulting from a multicultural organization, such as the employee’s feeling of exclusion, communication breakdowns, and group conflict, which may be seen to also impact employee performance as well as personnel turnover (Stevens et al., 2008; Pasca & Wagner, 2011).

Earley and Ang (2003, p. 9) have introduced cultural intelligence (CQ) to the management literature as a “capability for successful adaptation to new cultural settings, that is, for unfamiliar settings attributable to cultural context”. Since then, CQ has been found to be positively related to various work-related outcomes, such as expatriation intention (Remhof et al., 2014; Schlaegel & Sarstedt, 2016), cross-cultural adjustment (Malek & Budhwar, 2013), and performance (Engle & Delohery, 2016; Rockstuhl & Van Dyne 2018; Engle et al., 2021; and Schlaegel et al., 2021). CQ has been shown to explain the variance in these outcomes over and above established determinants, such as cognitive ability, international experience, language ability, and broad personality traits (Schlaegel et al., 2021). While previous studies have contributed to a better understanding of the nomological net of CQ, this research is characterized by three important limitations. First, the majority of previous studies have focused on the role of CQ when individuals face intercultural interaction when working in a foreign country, for example as an expatriate, a frequent business traveler, or employee with responsibilities, incorporating cross-national communications (e.g., Fang et al., 2018; Ott & Michailova, 2018), and much less research has been done with a focus on a nation’s everyday domestic workplace interactions with fellow employees who represent multiple national cultures (e.g., Mamman, 1995). Although, considerable recent work has examined CQ’s role in the effectiveness of global virtual teams (e.g., Richter et al., 2021) – a research stream of high practical relevance due to the COVID-pandemic-related need and trend to use virtual cross-cultural teams (e.g., Mangla, 2021) – we still lack a basic understanding of whether and to what degree CQ matters for job performance in a domestic context.

Second, and related to the first, the majority of previous CQ studies have examined in-role performance/task performance and we still lack a more in-depth understanding of whether and to what degree CQ is related to extra-role performance. Extra-role performance – employees' work behaviors that are beyond formal job roles and that are not explicitly recognized by formal reward systems (Hui et al., 1999) – promotes the efficient and effective functioning of the organization (e.g., MacKenzie et al., 1998). Given the increasing multicultural character of the workforce, it is important to assess whether and to what degree employees' CQ contributes to their extra-role performance (Schlaegel et al., 2021).

Third, previous research has focused on the outcomes of CQ, but we still lack a comprehensive understanding of how this ability develops and how it becomes more refined over time (Ott & Michailova, 2018). Although previous research has contributed to our knowledge of the emergence and formation of CQ and its underlying dimensions, this stream of research has largely focused on the experience gained and the cross-cultural interactions occurring in foreign countries (e.g., Michailova & Ott, 2018) and we still lack a fundamental understanding of the degree to which and how CQ develops in the domestic workplace context.

Drawing on the main tenets of Leung et al.'s (2014) "in situ" model of intercultural competence (i.e., "locally," "on site" or "in place") as an overall theoretical framework, we develop a conceptual model that hypothesizes how employees' extra-role performance unfolds as a function of their CQ, which in turn is determined by the multicultural workplace environment, the amount of interaction in the workplace, and employees' interpersonal motivation. First, we argue CQ facilitates the development of extra-role behaviors and, thus, extra-role performance. We then argue that CQ develops from the multicultural workplace environment, the individual's interpersonal motivation, and the degree of personal interaction within this environment. CQ is relevant for extra-role behavior in a domestic context as more general intercultural abilities develop "in situ" into more organizational-specific intercultural competencies through cultural diversity and interaction. This domain-specific CQ enables employees to develop intentional discretionary behaviors directed at helping other employees in the organization or aiming at improving the functioning of the organization. Thus, we theorize about, and empirically test, the mediating role of CQ in the domestic workplace.

By developing and testing this mediation model our study contributes to the literature on CQ in the workplace in three ways. First, we contribute to the CQ literature by examining a relatively understudied question concerning the antecedents of extra-role behavior in a multicultural context (e.g., Wollan et al., 2009) and delineating the processes leading to extra-role performance. Using a sample of United States (U.S.) business employees in a broad range of industries, our research highlights the role of CQ in fostering extra-role behaviors. In doing so, we extend the existing theorizing on extra-role performance, which has only paid sporadic attention to mechanisms of intercultural competence of extra-role behavior. In particular, we address the call of Ott and Michailova (2018) to examine the important role of CQ-related mechanisms and processes of extra-role behavior.

Second, our study answers recent calls to shed light on the role of a multicultural workplace environment, employees' motivational CQ, and the interactions among employees (Fang et al., 2018; Ott & Michailova, 2018). Within the framework of a domestic work environment, there are important questions to be addressed, including: To what degree, if any, does a domestic multicultural workplace environment, interpersonal motivation, and the number of people with whom an employee interacts in a typical workday, impact the level of an employee's CQ and, in turn, extra-role behavior? Research on the determinants of CQ has primarily relied

on international experience (e.g., Michailova & Ott, 2018). Extending previous studies, we shift the line of research on CQ from an international activity focus to a focus on the role of CQ in a domestic context. In addition, we also contribute to the methodological advancement of the field by developing and testing an instrument which measures the degree to which an employee is operating in a multicultural work environment.

Third, although interest in CQ in the workplace has considerably increased in the last two decades, as reflected in the increasing number of meta-analyses and reviews (e.g., Rockstuhl & Van Dyne, 2018; Schlaegel et al., 2021; Yari et al., 2020) we still lack a basic understanding of which determinants are *necessary conditions* for CQ and extra-role performance, which is why prior work has called for methodological advancement of research related to both CQ and work-related outcomes (Hauff et al., 2021; Richter et al., 2020). Thus, we contribute to the scarce empirical research on the necessary determinants of relevant outcomes in a multicultural workplace (Richter et al., 2020). In exploring the necessary conditions of CQ, we advance the theory by more fully explaining the development of intercultural competencies.

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

Cultural Intelligence and Extra-Role Performance

It has been argued that “despite the centrality of performance to I/O psychology, a general taxonomy detailing its [performance] composition remains elusive” (Varela & Landis, 2010, p. 633). A review of the literature reveals many variations in classifications and measurements of job performance. Possibly the most common classification approach is based upon the “in-role” and “extra-role” classifications of Katz and Kahn (1966). They see in-role performance as resulting from well-defined roles and activities that might typically be carefully described in formal job descriptions, and extra-role performance as those roles and activities that may not be described in detail within job descriptions.

Extra-role performance in the research literature may also be seen as similar to “contextual” performance or “organization citizenship behavior” (see Motowidlo, 2000; Varela & Landis, 2010), and has also been described as “team-member proficiency” or “organization-member proficiency” (Andrei & Parker, 2018). While there may be some reasons to maintain these various labels, as Motowidlo (2000) reminds us, “the behavioral content is more important than their labels” (p. 124). Varela and Landis (2010) argue that extra-role behaviors may be most sensitive to cultural differences and suggest more of an “activity” focus for the operationalization of this construct. In this study, we have maintained the Katz and Kahn (1966) original performance classification label of “extra-role” job performance. In a review of the literature, Srivastava and Shree (2019) found extra-role performance to be “voluntary behavior.”

Extra-role performance may, therefore, be seen as important, or even critical, when a company is trying to encourage innovation and synergistic interactions between groups, as well as creating a supportive and welcoming environment for employees, resulting in extra-role performance being found to be of particular importance in explaining overall employee performance ratings and contributing to the overall efficiency and effectiveness of organizations (Hughes et al., 2019).

Given the importance of extra-role performance to the organization, along with the observation of increasing levels of cultural diversity in domestic workplaces, we believe it is important to explore how cultural diversity may potentially be impacting cultural intelligence and extra-role performance in the domestic workplace. Interestingly Ang and Van Dyne (2008) who defined CQ as “an individual’s capability to function effectively in situations characterized by cultural diversity” (p. xv) proposed in their nomological network model of individual effectiveness that cultural intelligence should lead to multiple positive performance outcomes, including extra-role job performance.

Hypothesis 1: Employees’ CQ will have a significant positive relationship with their extra-role performance.

The Mediating Role of CQ

Interpersonal motivation, CQ, and extra-role performance

The Van Dyne et al. (2008) CQ model has been challenged by Thomas et al. (2008, 2015) who point out that Earley and Ang’s (2003) construct (meta-cognitive, cognitive, behavior and motivation) tends to put motivational CQ at the center of their model, whereas Thomas et al. (2008) propose an “episodic view” of CQ where meta-cognitive CQ plays the key role in tying cognitive and behavioral CQs together. Thomas et al. (2015) continue their argument, which sees within the four-factor model, motivation (motivational CQ) to not accurately fit with the other three CQ factors (meta-cognitive CQ; cognitive CQ; and behavioral CQ) as these three are ability-focused, and motivation is not. They, therefore, see the presence of motivational CQ as making the model more prone to possible error than if the same model was without the motivation factor, and argue the three-factor model is, therefore, a more accurate model. While recognizing that motivation and each of the various intelligences, including CQ, may have some degree of recursive relationship, the authors point out they are not the same, and that “Specifying a motivational component of cultural intelligence casts a prosocial (positive) halo over the construct ... that we do not believe exists” (p. 2). Thus, regarding their three-factor model, they indicate:

the main difference in terms of constituent elements is the absence here of a motivational facet – the motivation to direct energy positively toward intercultural interaction ... Motivation is concerned with the willingness to behave in a particular way, while cultural intelligence is the ability to interact effectively. Therefore, we consider motivation, while potentially an important element in cross-cultural interactions, to be external to cultural intelligence. (pp. 2–3)

Diefendorff’s (2007) view of motivation would also appear to support the view of Thomas et al. (2008, 2015) as he indicated motivation “refers to an internal set of nonability processes that channel, energize, and sustain behavior over time” (p. 489). In addition, Schlaegel et al. (2021) found the CQ dimensions to have a pattern of distinctive, but highly correlated relationships in their meta-analysis. Given these arguments, this study uses the three-factor model of CQ (cultural metacognition, cultural knowledge, and cultural skills) and the CQ survey instrument as developed and validated by Thomas et al. (2015), while still recognizing motivation as suggested by Thomas et al. (2015) to be an important but separate variable in this overall research model. However, as a result of above arguments, along with the findings of Engle et al. (2021) that the Ang and Van Dyne (2008) motivational CQ construct significantly

impacted not only each of these three dimensions of CQ but also each of a distinctly different set of the four factors that make up the classical emotional intelligence construct, and recognizing that this study will examine the motivational impact on extra-role job performance, we have decided for the purposes of clarity in this study to relabel the Ang et al. motivational CQ construct as “interpersonal motivation” (IPMot).

An overview of the literature regarding individual and interpersonal outcomes of culture intelligence, both the four-factor model and the three-factor model, suggest CQ’s potential impact on a broad range of performance and organizational behavioral outcomes including communication effectiveness and competence, task performance, extra-role performance, adaptive performance, multicultural team functioning (conflict, trust, cohesiveness, cooperation), and cultural adaption including subjective well-being, general adjustment, work adjustment and interactional adjustment (Ang & Van Dyne, 2008; Thomas et al. 2015; Schlaegel et al., 2021).

Hypothesis 2a: Employees’ interpersonal motivation will have a significant positive relationship with their CQ.

Hypothesis 2b: Employees’ CQ mediates the relationship between interpersonal motivation and their extra-role performance (significant indirect relationship).

Multicultural work environment, CQ, and extra-role performance

Culture can be seen as “mental programming of the mind” resulting largely from one’s family and early life social environments; and while it “starts within the family, it continues ... at the workplace” (Hofstede et al., 2010, p. 5). Employees bring their very diverse cultures to the workplace and in modern, increasingly multicultural societies, such as the United States and Europe, a growing number of individuals are working with others from multiple cultures (Titzmann & Fuligni, 2015). Trefry (2006) argues that “one of the major challenges for research and policy makers is [this] growing diversity in modern societies” (p. 407) and observed:

In today’s global environment employees may be working directly – in person or virtually – with people from all over the world; or they may be working side by side with immigrants from halfway around the world, or with people from the same country but of a different ethnic, racial, or cultural background. (p. 563)

Another way to describe culture is a “pattern of actions” which are gained and transferred through shared symbols among a social group, and it is these actions and symbols which need to be interpreted and understood for the optimal efficiency and effectiveness of employee interactions (Van der Zee et al., 2004). Fortunately, while much of our cultural knowledge stems from early life experiences, we are readily able, as suggested by social learning theory (Bandura, 1977) and intergroup social contact theory (Allport, 1954), to learn cultural practices from those around us.

As indicated above, one of the factors believed to impact extra-role performance is CQ (Ang & Van Dyne, 2008). Research has found that not only international work experience can contribute to CQ, but also international non-work experiences can do so as well (Engle & Crowne, 2014; Tarique & Takeuchi, 2008). However, even with the relatively recent increases in cultural diversity in today’s modern workforces, it appears little research has been done to

examine potential workplace impacts of multiculturalism on workforce employees who are citizens of the country in which the workplace is located. For those studies that have been done, there is little consistency in how the multicultural workplace environment construct is measured, with a range of approaches employed, including: using language as a proxy for cultural diversity (Evans & Suklun, 2017); whether the subjects self-evaluate themselves to be “multicultural” (Fitzsimmons et al., 2017); whether supervisors identified subordinate groups as ethnically diverse, i.e., as being white, black, native, Asian, Hispanic, African, or Pacific Islanders (Korovyakovskaya & Chong, 2016); and also defining a multicultural workforce as that of an organization operating in multiple countries (More & Tzafir, 2009). However, these approaches leave open the question of what individual employees perceive to be their actual experience with regard to multicultural exposure and learning. Perhaps certain departments or work groups within an organization are not “multicultural”, or perhaps the “workgroup” for some employees is small with relatively limited interpersonal interaction with other work areas, or perhaps while there may be workgroup members who are culturally diverse, an individual is not motivated to learn about these differences, or perhaps is not even consciously aware of the differences. These examples would suggest the need for a multicultural workgroup survey instrument which could shed light on these potential issues. This study attempts to develop such an instrument and evaluate the multicultural work environment from this individual worker perspective.

Hypothesis 3a: The multicultural work environment of employees will have a significant positive relationship with their CQ.

Hypothesis 3b: CQ mediates the relationship between employees’ multicultural work environment and their extra-role performance (significant indirect relationship).

Interaction Frequency, CQ, and Extra-Role Performance

It is also believed that to better capture the nature and potential of extra-role-related interpersonal interactions, it would be important to also evaluate the frequency with which the subject typically has daily workplace interactions with different co-workers. Supported by Bandura’s (1977) social learning theory and Allport’s (1954) social contact theory, it is felt that, for example, those employees with jobs having relatively few average daily workplace interactions may result in less opportunity for the employee to demonstrate extra-role performance, as well as the opportunity to potentially develop CQ based on workplace interactions. In further support, Pettigrew and Tropp’s (2006) meta-analysis concluded that the more contact (including work contact) different cultural groups had, the less prejudice group members reported; and Engle and Crowne (2014) found that in a multicultural setting, frequent social contact structured as suggested by Allport (1954) led to greater CQ. We, therefore, are also adding the degree of interaction frequency (interaction size) construct to this research model.

Hypothesis 4a: The interaction size of employees will have a significant positive relationship with their CQ.

Hypothesis 4b: CQ mediates the relationship between employees’ interaction size and their extra-role performance (significant indirect relationship).

Necessary conditions of CQ and extra-role performance

Dul (2016) suggests necessary condition analysis (NCA) as a method describing necessary conditions within a dataset that “may provide new insights that are normally not discovered with traditional approaches” (p. 15) and suggests NCA and multiple regressions are complementary analytical tools. He sees multiple regression as spotting determinants that may explain variances in the outcomes, while NCA may spot critical or necessary determinants that can prevent an outcome from occurring. In other words, an independent variable may be seen as a necessary condition to occur, but not substantive enough to explain significant amounts of variance in the outcome; while other independent variables may explain significant (substantive) amounts of outcome variance, while not being necessary for the outcome to occur. In addition, to the above hypotheses, the following research question is explored:

Exploratory research question 1: What independent variables in this research model are necessary conditions for CQ and extra-role performance?

METHODOLOGY

Survey Development, Data Collection Procedure, and Sample

The survey was developed, and pilot tested with a U.S. sample of ten respondents (personally known and employed individuals) to check for clarity of instructions and survey-question wording. Another larger pilot test of the full survey was then conducted among graduate students with at least one year of work experience ($N = 62$) at a private university in the Northeastern U.S. The survey was administered using Qualtrics. Based on the results of the pilot test, several survey items were removed or reworded. Participants for the final survey samples were recruited using Amazon Mechanical Turk (MTurk). MTurk is an online marketplace that solicits and allows one to perform simple computer-based tasks in exchange for payment. Since its public release in 2005, MTurk has been adapted by social scientists to conduct research projects in psychology, political science, sociology, and economics (e.g., Aguinis et al., 2021; Bohannon, 2016; Schlaegel et al., 2022). MTurk allows requesters to limit potential participants based on their MTurk performance history as well as their physical location, which is inferred based on their Internet Protocol (IP) and billing addresses. Only participants who had previously completed at least 100 MTurk tasks with an approval rate of at least 95% and who were based in, and citizens of, the U.S. were used for this study. In the MTurk description of the survey, it was specified that participants must be currently employed, or must have been employed within the past year (full-time or part-time) to be eligible for the survey. Participants were offered monetary compensation in exchange for completing the survey. To further ensure data quality, two verification questions were included in the MTurk survey. Participants who indicated that they were either not currently or within the past year employed, or who failed to answer the two verification questions correctly, or did not indicate they were U.S. citizens, were automatically excluded from the data set. The employed measures to ensure data quality were aligned with recommendations for research using MTurk (e.g., Cheung et al., 2016). The survey was advertised on MTurk for two weeks with over 300 submissions and a total of 263 respondents meeting all criteria. The average age of respondents was approximately 40 years, with two to four years of college, and nearly 15 years of work

experience. More than half of the respondents (59%) were females. The average respondent feels to be between “occasionally” and “often” working with people with different cultural backgrounds during a typical workday. Furthermore, the average respondent tends to interact with approximately ten different people daily within the workplace. There were 32 industry/company categories identified in the sample as that in which respondents are currently, or have most recently worked, with the top five participation categories being: technology, healthcare, retail, education, and finance.

Measures

Multicultural workplace environment

For this study we have developed a new instrument to assess an individual’s multicultural workplace environment. Drawing on the existing literature (e.g., Chang & Tharenou, 2004) we define multicultural workplace environment as the circumstances and conditions in which employees with different ethnic cultures work and perform their daily duties alongside one another within the organization. Drawing on existing scales and the literature on multicultural workplace environment, a focus group interview of six managers who were working in international companies considered to have significant multicultural workplace environments was conducted prior to our study to ensure that the definition of multicultural workplace environment would capture its domain of content sufficiently and develop potential questions. We then reviewed the original potential questions with four faculty researchers representing the fields of international business, psychology, and sociology, who also had cross-cultural research experience and assisted the authors in the development of a pilot testing set of 15 formative plus three reflective questions. This formative-reflective question approach follows the suggestion of Coltman et al. (2008) to use both question approaches in order to evaluate convergent validity. Our aim was to measure multicultural workplace environment with 5–7 formative questions in the final instrument. Thus, we started with 15 questions (Nunnally, 1978). We conducted two pilot tests of the full survey including the multicultural workplace environment (MCWE) question set. For the first pilot test we used ten persons and short interviews to receive feedback on the items. Based on the feedback of this first pilot we made minor adjustments to the items and for the second pilot test we used 62 persons. Cronbach Alpha testing was completed for each phase, in addition to construct validity testing including factor analysis conducted using principal component analysis with varimax rotation. Based on the data from this second set of pilot tests we identified six formative MCWE questions (see Appendix A). In addition, we also used three MCWE reflective questions (e.g., “My workplace is characterized by multicultural diversity”; 1 = totally disagree, 7 = totally agree) in the survey to assess the reliability of the formative measure, resulting in a close fit between formative and reflective test items with a path validity of .94 (Hair et al. [2006] suggests an ideal threshold of .7 or higher).

Culture intelligence (CQ)

CQ was measured using Thomas et al.’s (2015) measure, conceptualized as a single latent factor reflected in three intermediate CQ facets (i.e., knowledge, skills, and metacognition). With ten items such as “I know the ways in which cultures around the world are different” the measure uses a 5-point Likert scale (1 = not at all, 5 = extremely well).

Extra-role performance

Extra-role performance was measured with a four-question instrument developed by Varela and Landis (2010). This instrument used a 5-point scale with “1 = strongly disagree” and “5 = strongly agree” (e.g., “I assist and care for others in my workplace”).

Interpersonal motivation

Interpersonal motivation was measured using four questions that were developed by Van Dyne et al. (2008) to measure their “Motivational CQ” construct as part of their four-factor *CQ Scale*. The 7-point Likert Scale statements used in this survey were: “I am confident I can socialize with locals in a culture unfamiliar to me”; “I am sure I can deal with the stresses of adjusting to a culture that is new to me”; “I enjoy (or would enjoy) living in cultures that are unfamiliar to me”; and “I enjoy interacting with people from different cultures.” This is a widely used measure of motivational CQ (Ang & Van Dyne, 2008).

Interaction size

The range of daily individual workplace interaction was measured using the following question: “In your present or most recent job, approximately how many people do you interact with at work in a typical day?” (1 = 1–5 people; 2 = 6–10 people; 3 = 11–20 people; 4 = more than 20 people).

Control variables

In addition to the formal model variables, a number of control variables were included in this study: age (1 = under 18, 2 = 18–25, 3 = 26–40, 4 = 41–55, 5 = over 55); gender (1 = female, 0 = male); education (1 = No High School Degree, 2 = High School Graduate, 3 = some university/no degree; 4 = University Associate Degree (2 year), 5 = 4-year degree (Baccalaureate), 6 = Masters Degree, 7 = Doctorate or equivalent); work experience (number of work years); and the current industry, in which a respondent currently, or most recently, is employed (e.g. technology, healthcare, automotive, consumer products, education, etc.).

RESULTS

Descriptive statistics, reliabilities, and correlations among the variables in the study are presented in Table 17.1.

Measurement Model and Assessment of Common Method Variance

We used exploratory factor analyses (EFA) with maximum likelihood and Varimax rotation as well as confirmatory factor analysis (CFA) to examine the measurement model. The EFA results indicate that all factor scores satisfactorily ranged from a low of .452 to .878 (Hair et al., 2006) and the CFA met an acceptable level of model fit (CFI > .90, RMSEA < .08; Richter et al., 2016). Cronbach’s alpha values, composite reliabilities, and average variance extracted were used to assess internal consistency. Overall, the findings support the validity and internal reliability of the constructs.

The variables we used to test our hypotheses were all assessed with the same survey (i.e., self-reported and cross-sectional data), which might cause common method variance (CMV);

Table 17.1 *Descriptive statistics, reliabilities, and correlations*

Variables	M	SD	Alpha	1	2	3	4	5	6	7	8
1. Extra-role performance	2.92	0.81	0.74	1							
2. Cultural intelligence (CQ)	3.41	0.67	0.88	0.34	1						
3. MCWE	3.11	1.1	0.91*	0.13	0.33	1					
4. Interpersonal motivation	5.21	1.03	0.80	0.34	0.64	0.13	1				
5. Interaction size	2.76	1.07	-	0.26	0.02	0.12	-0.02	1			
6. Age	3.15	0.81	-	0.01	-0.21	-0.08	-0.12	0.09	1		
7. Gender	0.59	0.5	-	-0.06	-0.14	0.05	-0.10	0.01	-0.08	1	
8. Education	4.32	1.22	-	0.03	0.10	0.03	0.02	0.07	0.04	0.05	1
9. Work years	14.7	11.06	-	-0.01	-0.20	-0.09	-0.13	0.06	0.76	0.01	-0.09

Notes: $N = 263$. MCWE = multicultural work environment. Interaction size = daily individual workplace interactions. Gender: 1 = female, 0 = male. Correlations larger than .11 and smaller than -.11 are statistically significant at $p > .05$. *Reliability based on the three reflective items.

e.g., Chang & van Witteloostuijn, 2010). To reduce CMV, we used MTurk's ability, to randomize the order of survey items and we used different anchor points for the Likert scales of the different variables (Podsakoff et al., 2003). Furthermore, we used Harman's single factor test as a *post hoc* analysis. These results indicated the amount of variance explained using a single factor was 26.6% for this study, which is well below the threshold of 50%, suggesting that CMV has a limited influence on our results.

Test of Hypotheses

Table 17.2 shows the results of the hierarchical regression analysis. Models 1a and 2a include the main independent variables and Models 1b and 2b include the main independent variables and the control variables for CQ and extra-role performance respectively. Hypothesis 1 posits that employees' CQ will have a significant positive association with extra-role performance. For extra-role performance Models 2a and 2b show that CQ significantly and positively explains variance in extra-role performance ($\beta = .20$), supporting Hypothesis 1. Moreover, while interpersonal motivation ($\beta = .22$) and interaction size ($\beta = .26$) also significantly explain the variance of extra-role performance, multicultural workplace environment is not significantly associated with extra-role performance ($\beta = .01$). None of the control variables were found to have a significant direct impact on extra-role performance variance.

Hypotheses 2a, 3a, and 4a posit that interpersonal motivation, multicultural workplace environment, and interaction size are positively associated with CQ respectively. Table 17.2 for CQ shows that for Models 1a and 1b interpersonal motivation and multicultural workplace environment are positively associated with CQ, supporting Hypotheses 2a and 3a. Hypothesis 4a regarding interaction size and CQ is not supported.

Hypotheses 2b, 3b, and 4b posit that interpersonal motivation, multicultural workplace environment, and interaction size are mediated by CQ and, therefore, have significant indirect impacts on extra-role performance. We used hierarchical Bayesian analysis to test these hypotheses.

CQ did mediate the interpersonal motivation and extra-role performance relationship as well as the multicultural work environment and extra-role performance relationship, thus supporting Hypotheses 2b and 3b. Hypothesis 4b suggesting mediation of the interaction size and extra-role performance was not supported. However as indicated in Table 17.2, interaction

Table 17.2 Hierarchical regression results

Variables	Model 1a	Model 1b	Model 2a	Model 2b
	Std. Beta	Std. Beta	Std. Beta	Std. Beta
MCWE	0.255³	0.251³	0.009	0.01
Interaction size	0.002	0.007	0.262³	0.258³
Interpersonal motivation	0.611³	0.584³	0.221²	0.219²
Age		-0.144²		0.057
Gender		-0.116²		-0.008
Education		0.098¹		-0.011
Work years		0.015		-0.003
CQ	DEP.	DEP.	0.190¹	0.203¹
Extra-role performance			DEP.	DEP.
<i>R</i> ²	0.478	0.513	0.21	0.213
<i>Adj. R</i> ²	0.472	0.501	0.198	0.188
ΔR^2	-	0.29	-	0.025
<i>F Score</i>	79.1³	38.34³	17.13³	8.59³

Notes: **Bold** = statistically significant; ¹ $p > .05$; ² $p > .01$; ³ $p > .001$. CQ is the dependent variable (DEP.) in Models 1a and 1b and Extra-role performance is the dependent variable in Models 2a and 2b. $N = 263$. MCWE = multicultural work environment. Interaction size = daily individual workplace interactions. Gender: 1 = female, 0 = male.

size did have a significant positive direct impact on extra-role performance. Table 17.2 also indicates a significant direct relationship between interpersonal motivation and extra-role performance indicating that CQ partially mediates the interpersonal motivation and extra-role performance relationship. In addition, it was found that age, gender, and education variables were mediated by CQ and had significant indirect impacts on extra-role performance.

Exploring the Necessary Conditions for CQ and Extra-Role Performance¹

To address Exploratory Research Question 1, asking what, if any, independent variables are necessary conditions for CQ and extra-role performance, we conducted a multivariate necessary condition analysis (NCA) as suggested by Dul (2016) who describes the value of using NCA as follows:

NCA may provide new insights that are normally not discovered with traditional approaches: Multiple regression may spot determinants that (on average) contribute to the outcome (i.e., determinants with large regression coefficients), whereas NCA may spot necessary (critical) determinants that prevent an outcome to occur (constraints or bottlenecks). (p. 11)

A key output for NCA is the “effect size” (Dul, 2016). The effect size indicates to what extent the condition (independent variable) is necessary for the outcome to occur, or to what extent the condition constrains the outcome. Each model antecedent was examined with each dependent variable and evaluated based on this effect size. Using NCA, an effect size of less than .09 is considered “small effect”; from .10 to .29 is considered “medium effect”; and from 0.3 to 0.5 is considered “large effect.” In multiple studies, including those by Falk and Biesanz (2016) and Goertz et al. (2013) “medium effect” sizes of between 0.1 and 0.3 “were found to be theoretically and practically meaningful” (Dul, 2016, p. 30). Therefore, in this study effect sizes of “medium” and “large” effects (between 0.1 and 0.5) are considered as sug-

Table 17.3 *Summary of the size effect results of necessary condition analysis*

Variables	Cultural Intelligence (CQ)			Extra-Role Performance	
	small $0 < d < 0.1$	medium $0.1 < d < 0.3$	large $0.3 < d < 0.5$	small $0 < d < 0.1$	medium $0.1 < d < 0.3$
MCWE		0.10*		0	
Interpersonal motivation			0.34*		0.25*
Interaction size	0			0	
Education	0			0	
Gender	0			0	
Age	0			0	
Work years	0.02			0.02	
CQ	-				0.10*

Notes: ***statistically significant at $p < .05$** ; CR scores indicated with CE scores being similar. N = 263. MCWE = multicultural work environment. Interaction size = daily individual workplace interactions. Gender: 1 = female, 0 = male.

gesting a significant necessary condition relationship. Using the work of Dul (2016) and the Erasmus Research Institute of Management (2018), the results in Table 17.3 suggest CQ and interpersonal motivation can both be seen as necessary conditions for extra-role performance, while interpersonal motivation and multicultural work environment can be seen as necessary conditions for CQ. No other independent–dependent variable relationships are seen here to be necessary conditions; even though, for example, the independent variable – interaction size – explains a significant degree of the variance in extra-role performance, it is not found to be a necessary condition.

RESULTS SUMMARY

As previously indicated, the objective of this research is to address questions related to selected constructs' impact on CQ and extra-role performance, including: (1) To what degree, if any, does a domestic multicultural workplace environment, interpersonal motivation, and the number of people with whom an employee daily interacts impact the level of an employee's CQ? (2) To what degree does CQ, interpersonal motivation, the degree to which a domestic workplace is multicultural, and the number of people with whom an employee interacts in a typical workday impact an employee's extra-role performance? and (3) What model variables, if any, are seen to be “necessary conditions” for CQ and extra-role performance?

Using a sample of 263 U.S. citizens, these findings suggest that a higher level of a multicultural workplace environment within the United States does have a positive impact on the level of an employees' CQ, as does a higher level of an employee's interpersonal motivation. However, the results also suggest that the number of people with whom an employee interacts in a typical workday does not impact one's CQ as hypothesized. In addition, within this sample men tend to have significantly higher levels of CQ than women; and younger subjects tend to have higher levels of CQ than older subjects, while higher education significantly contributed to higher CQ scores. The number of years of work experience did not have a significant impact on CQ.

The results of this research study also suggest that higher CQ has a significant positive impact on an employee's extra-role performance. In addition, data suggest that not only does interpersonal motivation have a direct positive significant impact on CQ and extra-role performance, but CQ acts as a mediator for interpersonal motivation's indirect impact on extra-role performance as well. This study also suggests the greater the number of people with whom an employee interacts in a typical day has a significant direct and positive impact on extra-role job behavior. The results also suggest that multicultural work environment, age, gender, and education have significant indirect impacts on extra-role job performance with CQ as the mediator. Work years did not explain a significant amount of the variance in CQ or extra-role job performance.

Finally, necessary condition analysis suggests that cultural intelligence and interpersonal motivation can be seen as necessary conditions for extra-role performance. For the development of cultural intelligence, a multicultural work environment and interpersonal motivation are necessary conditions.

THEORETICAL AND PRACTICAL IMPLICATIONS

Previous research suggests that a culturally diverse workplace can contribute a number of benefits to the organization, including, but not limited to, organizational effectiveness, attraction of human resources, financial performance, and innovation (e.g., Cox & Blake, 1991; Konrad, 2006; Lambert, 2016). This research suggests the addition of another potential benefit to the list: an impact on an employee's CQ – a necessary condition and ability that this research suggests can significantly impact an individual's extra-role performance. These results have interesting and potentially important implications for both practice and research. Of particular importance is the finding that CQ and multicultural environments together with individuals who are motivated to understand and interact with people of different cultural backgrounds not only can significantly impact extra-role performance but are necessary to maximize extra-role job performance. Another important result of this study is that CQ appears to be developed within the domestic multicultural workplace, suggesting an individual is not required to travel internationally to see an increase in their CQ. Increased CQ with its potential to positively impact extra-role performance underscores the value of management and human resource departments' efforts in the creation, nurturing, and expansion of multicultural workplace environments. These findings also further emphasize the importance of management and the human resource department's need to address employee CQ training and development. Also, the finding that younger employees have higher CQ possibly suggests the need to reach out to older employees to encourage CQ training. In addition, the finding that more education may well result in greater CQ would also support management's focus on this aspect of an employment candidate's educational history.

The findings of this research suggesting that increased daily interactions between co-workers within the workplace increases extra-role performance potentially has implications for job design by suggesting the need for management to structure an individual's work so that they tend not to be relatively isolated in their daily work environment. These data suggest increasing daily workplace interpersonal interaction with more people may well result in greater extra-role job performance and the organizational benefits to which such performance contrib-

utes. In a post-COVID world with many companies allowing 3+ days of home-based working, these results suggest the need for strategies to overcome potential isolation from co-workers.

The finding that interpersonal motivation has both direct and indirect positive impacts on extra-role performance underscores the need for this personal characteristic to be targeted within the employee selection process along with cultural intelligence, as well as the need by management and human resources to nurture and reinforce it in employee training and development.

Finally, the finding that men tended to have higher CQ scores than women may suggest that human resources departments need to carefully evaluate this possibility in their organizations, and, if confirmed, explore reasons for this finding. Could it be that the training and jobs women are given limit their ability to develop CQ? Do women's work assignments put them in multicultural environments within which they can develop CQ? Do women have access to the training and development programs that focus on CQ skills? Perhaps there are reasons for this gender difference to be found within the employee selection process? Such in-house investigations and implementation of corrective actions may ultimately lead to increased CQ scores and greater organization performance.

These findings also should encourage researchers to consider evaluating multicultural workplace environments from the perspective of the individual employee rather than, or in addition to, non-personal perspectives. Even if a large organization has statistics to suggest they have significant cultural diversity in their operations, such "diversity" may not be impactful, or perceived to exist, for individuals working within specific departments or work areas within the organization.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The present study has several limitations that should be considered in the interpretation of these findings. Given the broad range of industries represented in this sample, the total sample size in this study is not large enough in any one industry to allow industry-level analyses. It is also possible that industry practices, and/or even individual company resources, can alter the relationships seen in this study. Also, while explaining 21% of the variance in extra-role job behavior and 51% of an individual's CQ is statistically significant, there is much variance left to explain. For example, there are several potential constructs seen as having the potential to be added, including a range of personal characteristics and skills, as well as organizational characteristics.

These data suggest that future research involving workplace CQ and extra-role performance and related constructs should consider the role of multicultural environments and interpersonal motivation as necessary conditions for improving CQ, as well as interpersonal motivation, the degree of interpersonal interaction, and culture intelligence as necessary conditions for extra-role job performance. In addition, future research on extra-role behavior and related constructs should also recognize the significance of the level of employee workplace interaction given the findings of this research. Overall, this research also suggests that research involving any employee workplace interactions should consider CQ as a potential construct to examine, even if done in a domestic setting.

Research needs to consider the observation that multicultural workplace environments are continuing to increase in frequency and size within organizations as companies focus on

cultural diversity development. This emphasis is driven by many social and business factors, for example, Glazer and Francis (2021) report that CEO compensations are increasingly tied to diversity goals and that as of the spring of 2021 a third of S&P 500 companies were using diversity in their compensation programs. Such activities could well make CQ even more important, and the potential reciprocal effects of multicultural workplace environments and CQ is an area we should better understand, as well as having a better understanding of how to manage the organizational processes that encourage multicultural growth and its resulting benefits, especially given current changes in work environments.

While three dimensions (meta-cognitive, cognitive, and behavioral) make up the elements that are combined into an overall CQ score as used in this study, previous research has also suggested that, when using research models involving CQ, examining these individual CQ factors, rather than looking at only an aggregated factor score, is potentially beneficial by allowing for important insights (Engle & Nash, 2015). Such research may lead us to consider more specific strategies for developing CQ.

These research findings further support the position of Thomas et al. (2008, 2015) that motivational CQ should be considered as separate from the CQ construct. Recognizing the work of Engle et al. (2021) indicated above, as well as the finding of a direct significant impact of “interpersonal motivation” (originally the “motivational CQ” construct) on extra-role job performance, future research should consider further developing the classic “motivational CQ”, labeled in this study as “interpersonal motivation” (IPMot), by reconstructing the survey instrument questions to allow for a broadening of the construct to not just focus on CQ-related items but to potentially include a broad range and/or more neutral view of interpersonal motivation orientation, as the results of such an effort may further confirm the use of such a construct in a broad range of behavioral-related outcomes.

Finally, Allport’s (1954) social contact theory continues to offer potential additional insights and guidance with regards to improving cultural knowledge and interaction in the workplace (Shenkar et al., 2022). An example of this relationship may be seen as being supported by Engle and Crowne (2014) who developed an application of social contact theory for short-term study abroad experience, which was found to significantly contribute to an individual’s CQ. Perhaps this social contact construct has additional applications for developing CQ and employee performance within modern-day workplace design as well, and, as such, should be further explored by researchers.

NOTE

1. Additional information related to the Necessary Condition Analysis can be found in Appendix B.

REFERENCES

- Adler, N. (2002). *International Dimensions of Organizational Behavior (4th Ed.)*. Cincinnati: South-Western Publishing.
- Aghazadeh, S. M. (2004). Managing workforce diversity as an essential resource for improving organizational performance. *International Journal of Productivity and Performance Management*, 53(5/6), 521–531.

- Aguinis, H., Villamor, I., & Ramani, R. (2021). MTurk research: Review and recommendations. *Journal of Management*, 47(4), 823–837.
- Allport, G. (1954). *The Nature of Prejudice*. New York: Perseus Book Group.
- Andreadis, I., & Kartsounidou, E. (2020). The impact of splitting a long online questionnaire on data quality. *Survey Research Methods*, 14(1), 31–42.
- Andrei, D., & Parker, S. (2018). Work design for performance: Expanding the criterion domain. In D. Ones, N. Anderson, C. Viswesvaran, & H. Sinangil, *The SAGE Handbook of Industrial, Work & Organizational Psychology Vol. 2* (pp. 357–377). Thousand Oaks: Sage. doi:<http://dx.doi.org/10.4135/9781473914957>
- Ang, S., & Van Dyne, L. (2008). *Handbook of Cultural Intelligence: Theory, Measurement, and Applications*. London: M.E. Sharpe.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs: Prentice Hall.
- Biesanz, J., Falk, C., & Savalei, V. (2010). Assessing mediational models: Testing and interval estimation for indirect effects. *Multivariate Behavioral Research*, 45, 661–701. Retrieved from <http://dx.doi.org/10.1080/00273171.2010.498292>
- Bohannon, J. (2016). Mechanical Turk upends social sciences. *Science*, 352, 1263–1264.
- Chang, S., & Tharenou, P. (2004). Competencies needed for managing a multicultural workgroup. *Asia Pacific Journal of Human Resources*, 42(1), 57–74.
- Chang, S.-J., & van Witteloostuijn, A. (2010). From the Editors: Common method variance in international business research. *Journal of International Business Studies*, 41(2), 178–184.
- Chang, S. J., Witteloostuijn, A. V., & Eden, L. (2020). Common method variance in international business research. In L. Eden, B. B. Nielsen, & A. Verbeke (Eds.), *Research Methods in International Business* (pp. 385–398). Cham: Palgrave Macmillan.
- Charoensukmongkol, P. (2020). The efficacy of cultural intelligence for adaptive selling behaviors in cross-cultural selling: The moderating effect of trait mindfulness. *Journal of Global Marketing*, 33(3), 141–157.
- Cheung, J., Burns, D., Sinclair, R., & Sliter, M. (2016). Amazon Turk in organizational psychology: An evaluation and practical recommendations. *Journal of Business and Psychology*, 31(1), 1–15.
- Coltman, T., Devinney, T., Midgley, D., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research*, 61, 1250–1262.
- Cox, T., & Blake, S. (1991). Managing cultural diversity: Implications for organizational competitiveness. *The Executive (Academy of Management)*, 5(3), 45–56.
- Craighead, C., Ketchen, D., Dunn, K., & Hult, G. (2011). Addressing common method variance: Guidelines for survey research on information technology, operations, and supply chain management. *IEEE Transactions on Engineering Management*, 58(3), 8.
- Diefendorff, J. (2007). Motivational traits. In S. Rogelberg (Ed.), *Encyclopedia of Industrial and Organizational Psychology (Vol. 2)* (pp. 489–492). Thousand Oaks: Sage.
- Dul, J. (2016). Necessary Condition Analysis (NCA): Logic and methodology on “necessary but not sufficient” causality. *Organizational Research Methods*, 19(1), 10–52.
- Earley, P., & Ang, S. (2003). *Cultural Intelligence: Individual Interactions across Cultures*. Palo Alto: Stanford University Press.
- Engle, R., & Crowne, K. (2014). The impact of international experience on cultural intelligence: An application of contact theory in a structured short-term program. *Human Resource Development International*, 17(1), 30–46.
- Engle, R., & Delohery, A. (2016). Culture intelligence’s impact on cross-cultural problem solving performance. *Double Helix: A Journal of Critical Thinking and Writing*, 4, 1–12. doi:wac.colostate.edu/double-helix/archives/v4/
- Engle, R., & Nash, B. (2015). Does it matter if researchers use individual dimension constructs or aggregated constructs of cultural distance and cultural intelligence? *Journal of International Business Research*, 14(2), 47–65.
- Engle, R., Dimitriadi, N., & Toskin, K. (2021). Extra-role job performance in Russia: The impact of cultural and emotional intelligences. *International Business Research, Teaching and Practice (Academy of International Business Southeast Region Journal)*, 10(1). doi:<https://aibse.monmouth.edu/index.php/ibrtp/issue/archive>

- Erasmus Research Institute of Management. (2018). *Necessary Condition Analysis*. Retrieved from NCA Calculator: <https://www.irim.eur.nl/necessary-condition-analysis/software-and-calculator/nca-calculator/>
- Evans, A., & Suklun, H. (2017). Workplace diversity and intercultural communication: A phenomenological study. *Cogent Business & Management*, 4(1408943).
- Falk, C., & Biesanz, J. (2016). *Two cross-platform programs for inferences and interval estimation about indirect effects in mediation models*. New York: Sage Open, 6. Retrieved from <http://dx.doi.org/10.1177/2158244015625445>
- Fang, F., Schei, V., & Selart, M. (2018). Hype or hope? A new look at the research on cultural intelligence. *International Journal of Intercultural Relations*, 66, 148–171.
- Fitzsimmons, S., Liao, Y., & Thomas, D. (2017). From crossing cultures to straddling them: An empirical examination of outcomes for multicultural employees. *Journal of International Business Studies*, 48(1), 63–89.
- Glazer, E., & Francis, T. (2021, June 2). CEO pay increasingly tied to diversity goals. *Wall Street Journal*. Retrieved from https://wsj.com/articles/ceos-pledged-to-increase-diversity-now-boards-are-holding-them-to-it-11622626380?mod=hp_lista_pos1
- Goertz, G., Hak, T., & Dul, J. (2013). Ceilings and floors: Where are there no observations? *Sociological Methods & Research*, 42(1), 3–40.
- Gomez-Mejia, L., & Palich, L. (1997). Cultural diversity and the performance of multinational firms. *Journal of International Business Studies*, 28(2), 309–335.
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis* (6th Edn). Upper Saddle River: Pearson Prentice Hall.
- Hauff, S., Guerci, M., Dul, J., & van Rhee, H. (2021). Exploring necessary conditions in HRM research: Fundamental issues and methodological implications. *Human Resource Management Journal*, 31(1), 18–36.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind* (revised and expanded 3rd Edn). New York, NY: McGraw-Hill.
- Hughes, D., Richards, K., Calantone, R., Baldus, B., & Spreng, R. (2019). Driving in-role and extra-role brand performance among retail frontline salespeople: Antecedents and the moderating role of customer orientation. *Journal of Retailing*, 2, 130–143.
- Hui, C., Law, K., & Chen, Z. (1999). A structural equation model of the effects of negative affectivity, leader-member exchange, and perceived job mobility on in-role and extra-role performance: A Chinese case. *Organizational Behavior and Human Decision Processes*, 77(1), 3–21.
- Katz, D., & Kahn, R. (1966). *The Social Psychology of Organizations*. New York: Wiley.
- Khumalo, P., & Zondo, R. (2021). Perception of the influence of cultural diversity on business performance in the automotive component manufacturing in South Africa. *SA Journal of Human Resource Management*, 19, 1–7. doi:10.4102/sajhrm.v19i0.1451
- Kim, Y., Brady, A., & Wolters, C. (2020). College students' regulation of cognition, motivation, behavior, and context: Distinct or overlapping processes? *Learning and Individual Differences*, 80, 101872.
- Konrad, A. (2006). Leveraging Workplace diversity in organizations. *Organization Management Journal*, 3(3), 164–189.
- Korovyakovskaya, I., & Chong, H. (2016). An investigation of the relationships between three types of conflict and perceived group performance in culturally diverse work groups. *Journal of Organizational Culture*, 20(1), 30–46.
- Lambert, J. (2016). Cultural diversity as a mechanism for innovation: Workplace diversity and the absorptive capacity framework. *Journal of Organizational Culture*, 20(1), 68–77.
- Lee, K., & Allen, N. (2002). Organizational citizenship behavior and workplace deviance: The role of affect and cognitions. *Journal of Applied Psychology*, 87(1), 131–142.
- Leung, K., Ang, S., & Tan, M. (2014). Intercultural competence. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 489–519. doi:www.annualreviews.org/doi/pdf/10.1146/annurev-orgpsych-031413-091229
- Livemore, D. (2011). *The Cultural Intelligence Difference*. New York: American Management Association.
- MacKenzie, S., Podsakoff, P., & Ahearne, M. (1998). Some possible antecedents and consequences of in-role and extra-role salesperson performance. *Journal of Marketing*, 62(3), 87–98.

- Malek, M., & Budhwar, P. (2013). Cultural intelligence as a predictor of expatriate adjustment and performance in Malaysia. *Journal of World Business, 48*(2), 222–231.
- Mamman, A. (1995). Employee intercultural effectiveness in a multicultural workplace: Theoretical propositions, strategies, and direction for future research. *International Journal of Human Resource Management, 6*(3), 528–552.
- Mangla, N. (2021). Working in a pandemic and post-pandemic period – Cultural intelligence is the key. *International Journal of Cross Cultural Management, 21*(1), 53–69.
- McClelland, D. (1987). *Human Motivation*. Cambridge: Cambridge University Press.
- McMahon, A. (2010). Does workplace diversity matter? A survey of empirical studies on diversity and firm performance, 2000–2009. *Journal of Diversity Management, 5*(2), 38–48.
- Michailova, S., & Ott, D. (2018). Linking international experience and cultural intelligence development: The need for a theoretical foundation. *Journal of Global Mobility: The Home of Expatriate Research, 6*(1), 59–78.
- More, K., & Tzafirir, S. (2009). The role of trust in core team employees: A three-nation study. *Cross Cultural Management: An International Journal, 16*(4), 410–433.
- Motowidlo, S. (2000). Some basic issues related to contextual performance and organizational citizenship behavior in human resource management. *Human Resource Management Review, 10*(1), 115–126.
- Nunnally, J. (1978). *Psychometric Theory*. New York: McGraw-Hill.
- Ocampo, L., Acedillo, V., Bacunador, A., Balo, C., Lagdameo, Y., & Tupa, N. (2018). A historical review of the development of organizational citizenship behavior (OCB) and its implications for the twenty-first century. *Personnel Review, 47*(4), 821–862.
- Ott, D., & Michailova, S. (2018). Cultural intelligence: A review and new research avenues. *International Journal of Management Reviews, 20*(1), 99–119.
- Pasca, R., & Wagner, S. (2011). Occupational stress in the multicultural workplace. *Journal of Immigrant Minority Health, 13*, 697–705.
- Pettigrew, T., & Tropp, L. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*(5), 751–783.
- Podsakoff, P., MacKenzie, S., Lee, J.-Y., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Research, 88*(5), 879–903.
- Presbitero, A. (2021). Communication accommodation within global virtual team: The influence of cultural intelligence and the impact on interpersonal process effectiveness. *Journal of International Management, 27*(100809).
- Remhof, S., Gunkel, M., & Schlaegel, C. (2014). Goodbye Germany! The influence of personality and cognitive factors on the intention to work abroad. *International Journal of Human Resource Management, 25*(16), 2319–2343.
- Richardson, H., Simmering, M., & Sturman, M. (2009). A tale of three perspectives. *Organizational Research Methods, 12*(4), 762–800.
- Richter, N., Martin, J., Hansen, S., Taras, V., & Alon, I. (2021). Motivational configurations of cultural intelligence, social integration and performance in global virtual teams. *Journal of Business Research, 129*, 351–367.
- Richter, N., Schlaegel, C., Bakel, M., & Engle, R. (2020). The expanded model of cultural intelligence and its explanatory power in the context of expatriation intention. *European Journal of International Management, 14*(2), 381–419.
- Richter, N., Sinkovics, R., Ringle, C., & Schlaegel, C. (2016). A critical look at the use of SEM in international business research. *International Marketing Review, 33*(3), 376.
- Rockstuhl, T., & Van Dyne, L. (2018). A bi-factor theory of the four factor model of cultural intelligence: Meta-analysis and theoretical extensions. *Organizational Behavior and Human Decision Processes, 148*, 124–144.
- Schlaegel, C., & Sarsted, M. (2016). Assessing the measurement invariance of the four-dimensional cultural intelligence scale across countries: A composite model approach. *European Management Journal, 34*(6), 633–649.
- Schlaegel, C., Engle, R., & Lang, G. (2022). The unique and common effects of emotional intelligence dimensions on job satisfaction and facets of job performance: An exploratory study in three countries. *International Journal of Human Resource Management, 33*(8), 1562–1605.

- Schlaegel, C., Richter, N., & Taras, V. (2021). Cultural intelligence and work-related outcomes: A meta-analytic examination of joint effects and incremental predictive validity. *Journal of World Business, 56*(101209), 1–27.
- Shannon, L., & Begley, T. (2008). Antecedents of the four-factor model of cultural intelligence. In S. Ang & L. VanDyne, *Handbook of Cultural Intelligence: Theory, Measurement, and Applications* (pp. 41–55). London: M.E. Sharpe.
- Shenkar, O., Tallman, S., Wang, H., & Wu, J. (2022). National culture and international business: A path forward. *Journal of International Business Studies, 53*, 516–533.
- Srivastava, A., & Shree, S. (2019, September). A review of extra role behavior as an organizational asset. *SIBM Pune Research Journal, XVIII*, pp. 39–46. doi:www.samvad.sibmpune.edu/index.php/samvad/article/viewFile/145812/103662
- Stevens, F., Plaut, V., & Sanchez-Burks, J. (2008). All-inclusive multiculturalism and positive organizational change. *The Journal of Applied Behavioral Science, 44*(1), 116–133.
- Tarique, I., & Takeuchi, R. (2008). Developing cultural intelligence. In S. Ang & L. Van Dyne, *Handbook of Cultural Intelligence* (pp. 56–70). New York: M.E. Sharpe.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53–55.
- Thomas, D., Elron, E., Stahl, G., Ekelund, B., Ravlin, E., Cerdin, J., ... Lazarova, M. (2008). Cultural intelligence: domain and assessment. *International Journal of Cross Cultural Management, 8*(2), 123–143.
- Thomas, D., Liao, Y., Aycan, Z., Cerdin, J., Pekerti, A., Ravlin, C., ... van de Vijver, F. (2015). Cultural intelligence: A theory-based short form measure. *Journal of International Business Studies, 36*(1), 1–20.
- Titzmann, P., & Fuligni, A. (2015). Immigrants' adaption to different cultural settings: A contextual perspective on acculturation. *International Journal of Psychology, 50*(6), 407–412.
- Trefry, M. (2006). A double-edged sword: Organizational culture in multicultural organizations. *International Journal of Management, 23*(3, Part 2), 563.
- Triandis, H. (2008). Cultural intelligence. In S. Ang, & L. Van Dyne, *Handbook of Cultural Intelligence: Theory, Measurements, and Applications* (pp. xi–xiii). London: M.E. Sharpe.
- Van der Valk, W., Sumo, R., Dul, J., & Schroeder, R. (2016). When are contracts and trust necessary for innovation in buyer–supplier relationships? A Necessary Condition Analysis. *Journal of Purchasing & Supply Management, 22*, 266–277.
- Van der Zee, K., Van Oudenhoven, J., & Grijns, E. (2004). Personality, threat, and cognitive and emotional reactions to stressful intercultural situations. *Journal of Personality, 72*, 1069–1096.
- Van Dyne, L., & LePine, J. (1998). Helping and voice extra-role behavior: Evidence of construct and predictive validity. *Academy of Management Journal, 41*, 108–119.
- Van Dyne, L., Ang, S., & Koh, C. (2008). Development and validation of the CQS. In S. Ang & L. Van Dyne, *Handbook of Cultural Intelligence: Theory, Measurement, and Applications* (pp. 16–38). London: M.E. Sharpe.
- Varela, O., & Landis, R. (2010). A general structure of job performance: Evidence from two studies. *Journal of Business Psychology, 25*, 625–638.
- Wollan, M., de Luque, M., & Grunhagen, M. (2009). Motives for helping: Exploring cultural influences on extra-role behavior. *Multinational Business Review, 17*(1), 99–119.
- Yari, N., Lankut, E., Alon, I., & Richter, N. (2020). Cultural intelligence, global mindset, and cross-cultural competencies: A systematic review and recommendations. *European Journal of International Management, 14*(2), 210–250.

APPENDIX A

Multicultural Workplace Environment (MCWE) Survey Questions

For the following questions regarding your current or most recent job, please indicate one of the following answers:

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

1. Within your workplace, how often do you interact with someone from a different culture?

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

2. To what degree does the organization where you work interact with people from different countries?

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

3. How frequently do you hear people in your workplace speaking a language different from your native language?

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

4. How often do you work on a project team with people who have come from different countries?

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

5. Approximately how frequently during a typical workday do you spend interacting with people who were not born in your home country?

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

6. When you think about the projects you have been a part of during your past year of work, how often were multicultural issues something you needed to consider?

1 never 2 rarely 3 occasionally 4 often 5 very often 6 always

APPENDIX B

In relation to this chapter, additional insights with NCA may be seen with two additional NCA outputs that Dul (2016) labels as a “ceiling line” analysis and “Bottleneck” analysis. The Bottleneck analysis is derived from a ceiling line in a scatterplot analysis (using NCA software and calculator). Figure 17B.1 indicates an example of a ceiling line scatterplot using this study’s data. This scatterplot contains a relatively empty space in the upper left corner above the space with observations, suggesting the possible presence of a necessary condition. As described by Dul (2016), the “CR ceiling line” technique allows for some data points above the line and suggests where “bottlenecks” may be found in the data (see Figure 17B.1). As pointed out by Van der Valk et al. (2016), “the larger the ceiling zone, the stronger the effect” (p. 269). Dul (2016) also points out that “Multivariate necessary condition analysis with bottleneck technique identifies which determinants, from a set of necessary determinants, successively become the weakest links (bottlenecks, constraints) if the desired outcome increases. In other words, for a given level of the desired outcome, multivariate necessary condition analysis identifies the necessary (but not sufficient) minimum values of the determinants to make the desired outcome possible” (p. 25). Tables 17B.1 and 17B.2 indicate the results for the Bottleneck analysis for data relationships examined in this study.

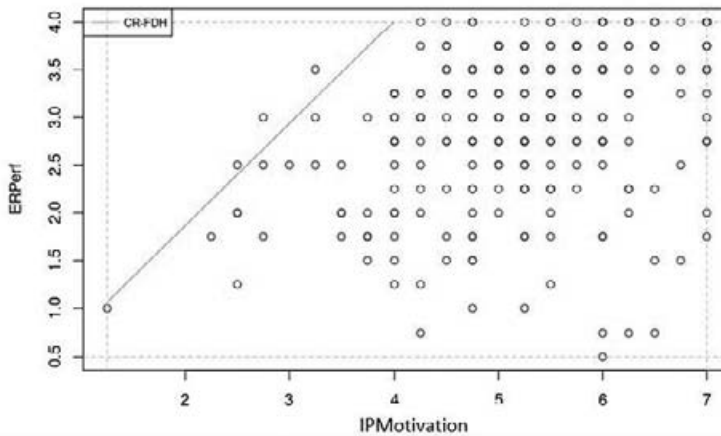


Figure 17B.1 Scatterplot example with ceiling line

Table 17B.1 Bottleneck analysis for extra-role performance outcome

Bottleneck: CR-FDH (cutoff = 0)
Y = Extra-Role Performance
1 = Multicultural Work Environment (MCWE)
2 = Interpersonal Motivation (IPMot)
3 = Interaction Size (Interact)
4 = Education (ED)
5 = Gender (GEN)
6 = Age
7 = Work Years
8 = CQ

Y	1	2	3	4	5	6	7	8
0.50	NN	NN	NN	NN	NN	NN	NN	NN
0.85	NN	NN	NN	NN	NN	NN	NN	NN
1.20	NN	2.2	NN	NN	NN	NN	NN	NN
1.55	NN	7.9	NN	NN	NN	NN	0.1	NN
1.90	NN	13.6	NN	NN	NN	NN	0.6	NN
2.25	NN	19.3	NN	NN	NN	NN	1.0	NN
2.60	NN	25.0	NN	NN	NN	NN	1.5	NN
2.95	NN	30.6	NN	NN	NN	NN	2.0	9.1
3.30	NN	36.3	NN	NN	NN	NN	2.4	20.6
3.65	NN	42.0	NN	NN	NN	NN	2.9	32.0
4.00	NN	47.7	NN	NN	NN	NN	3.4	43.4

Notes: Y = actual scores; 1–8 = percentage of score range; NN = Not a Necessary Condition.

Table 17B.2 Bottleneck analysis for cultural intelligence outcome

Bottleneck: CR-FDH (cutoff = 0)
Y = Cultural Intelligence
1 = Multicultural Work Environment (MCWE)
2 = Interpersonal Motivation (IPMot)
3 = Interaction Size (Interact)
4 = Education (ED)
5 = Gender (GEN)
6 = Age
7 = Work Years

Y	1	2	3	4	5	6	7
1.40	NN	NN	NN	NN	NN	NN	NN
1.76	NN	NN	NN	NN	NN	NN	NN
2.12	NN	NN	NN	NN	NN	NN	NN
2.48	NN	10.0	NN	NN	NN	NN	NN
2.84	NN	20.2	NN	NN	NN	NN	NN
3.20	NN	30.5	NN	NN	NN	NN	NN
3.56	NN	40.8	NN	NN	NN	NN	0.9
3.92	NN	51.1	NN	NN	NN	NN	2.5
4.28	14.6	61.4	NN	NN	NN	NN	4.1
4.64	37.6	71.7	NN	NN	NN	NN	5.7
5.00	60.6	81.9	NN	NN	NN	NN	7.3

Notes: Y = actual scores; 1–7 = percentage of score range; NN = Not a Necessary Condition.

In Tables 17B.1 and 17B.2 the dependent variable (Y) column reflects points along the range of actual scores and the other columns indicate percentage ranges. The percentages listed refer to the percentage of the condition's (in each of the 1–7 or 1–8 variables) range between the lowest and highest observed values in the data set. For example, in Table 17B.1, if the highest level of extra-role performance was desired (4.0) and one wanted to know what the necessary level of cultural intelligence was for this level; you would calculate the range of the IPMot scores (in this case the actual score range was from 1.25 to 7.0, or 5.75) and then take 47.7 (in the IPMot column 2 at the 4.0 level) which represents a percentage (47.7% of 5.75) resulting in 2.74. This score of 2.74 would then be added to the low score (starting point of the range) of 1.25 for a desired IPMot score of 3.99, which represents the necessary (“but not necessarily sufficient”) condition for a 4.0 extra-role performance level. In addition, when examining Figure 17B.1, the ceiling line may be seen to end at this point of the ERP 4.0 and 3.99 IPMot axis. Also note that while the number of years of work experience (Work Years) places some degree of constraint on CQ, the “size effect” in Table 17.3 of the chapter text above indicates that this constraint is not considered significant and is therefore not a “necessary condition.”

References

- Dul, J. (2016). Necessary Condition Analysis (NCA): Logic and methodology on “necessary but not sufficient” causality. *Organizational Research Methods*, 19(1), 10–52.
- Van der Valk, W., Sumo, R., Dul, J., & Schroeder, R. (2016). When are contracts and trust necessary for innovation in buyer-supplier relationships? A Necessary Condition Analysis. *Journal of Purchasing & Supply Management*, 22, 266–277.